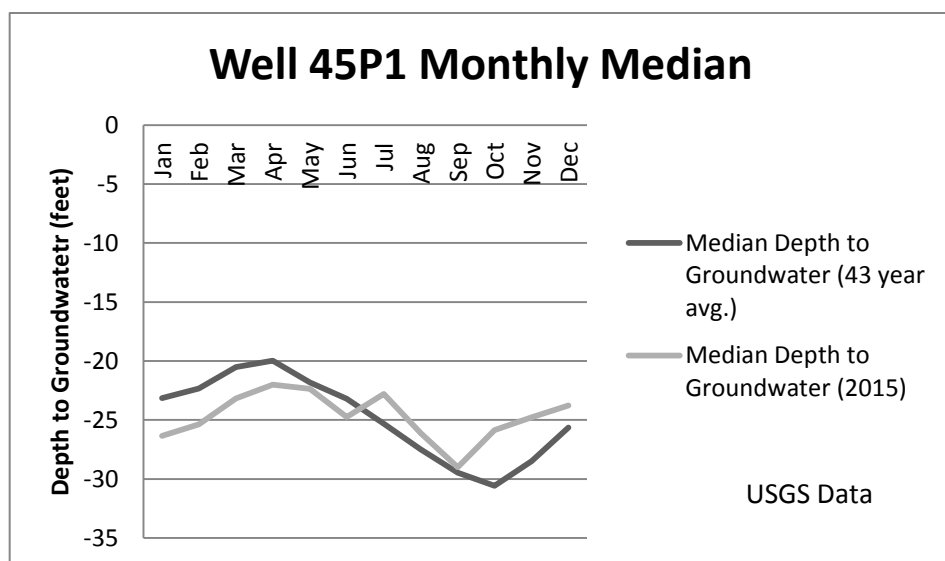




Office of Environmental Health Services

Managing Your Private Well During a Drought

An estimated 700,000+ Virginia homeowners rely on private wells for their potable water supply, and may have questions regarding what happens to wells during droughts. Wells exist below ground, out of sight, and this can lead to worry regarding the potential of wells running dry or water quality degenerating when drought conditions become extreme.



This chart shows a pattern of yearly water level fluctuation typical of shallow wells. This well is located near Charlottesville, Virginia, and the median monthly depth to groundwater (measured over 43 years and for the year 2015) can be seen.

Groundwater levels tend to be highest during March and April as a

result of recharge from snowmelt and winter/spring rains. Beginning in May, groundwater levels start to fall as a result of rising temperatures and uptake from trees and other vegetation. The lowest elevations typically occur in the autumn months of September and October, after which groundwater levels again rise in response to precipitation, recharge, and tree dormancy. This being the natural cycle, most problems with wells occur during late summer and early fall when groundwater levels naturally reach the lowest levels. As the 2015 data shows, there can be annual distinctions resulting from major storms and similar events.

During a major drought sufficient to disrupt this naturally occurring seasonal cycle, groundwater recharge can be interrupted sufficiently to reduce or even eliminate the November to April recharge resulting in lower elevations the following year. Such natural fluctuation is most prominent in shallow

wells, where the effect can be locally more pronounced especially as result of heavier water use for lawn and garden irrigation during the growing season. Shallow wells are often the first wells to run dry during drought. While these effects are generally less severe for deeper wells, deep wells also take longer to recover when drought conditions cease.

ACTIONS PRIVATE WELL USERS SHOULD TAKE DURING DROUGHTS

VDH encourages common sense water conservation practices at all times. When the natural cycle is worsened as a result of a drought, water conservation becomes even more essential. Private well owners should “ramp up” water conservation measures as soon as drought conditions become known. These include:

- Where possible and economically justifiable, install water-saving plumbing fixtures in the home.
- Flush the toilet less often. In most cases, several uses can be made of the toilet for liquid wastes before flushing is required.
 - Do not use the toilet for disposing of trash, waste paper, and the like.
 - Make sure that your toilet does not leak. Place a few drops of food coloring in the toilet tank. If the colored water appears in the toilet bowl without flushing, your toilet is leaking—have it fixed immediately.
 - Fix leaking faucets. A 1/16-inch opening at 40 pounds of pressure will leak 970 gallons in 24 hours.
 - Do not let faucets run for washing or rinsing. Always fill a container with water for this purpose or use the sink by stopping the drain.
- Do not water lawns or wash cars when water is in short supply. Also, try to water lawns and landscapes during evening or early morning to reduce evaporation from the sun.
- Brush your teeth before shaving in the morning so the cold water in the supply line is used instead of running to waste while you wait for hot water with which to shave.
- Keep a bottle of drinking water in the refrigerator to avoid letting water run to obtain a cold drink.
- Do not prewash dishes for automatic dishwashers unless necessary.
- Only wash full loads (dishwasher and laundry).
- Do not use the garbage disposal. Compost vegetable peelings on your garden or put them in the garbage can.
- Take shorter showers. Remember, the longer you are in the shower, the more water you use.
- If your shower is equipped with a mixing faucet that can be set with a dial to the desired temperature, turn the shower off while soaping up. When you have finished soaping up, turn the shower back on to rinse off. If your shower is not equipped with a temperature dial, you may end up using more water as you adjust the water temperature again; consequently, this practice is not recommended for showers without automatic temperature adjustment or a shut-off valve in the shower head.
- When shaving, use water in the washbowl to clean your razor between strokes, or use an electric razor.
- Always use a brush, wash cloth, or your hand to dislodge particles of dirt when washing anything rather than relying on the force of the water to do the job.



- Allow small children to bathe in the tub at the same time.
- Consider using disposable diapers to avoid a toilet flush when rinsing a dirty diaper and to cut down on the amount of soiled laundry to be washed.
- Reuse kitchen drain water by collecting it in a container and using it to water plants, lawns, and gardens or to recharge the toilet reservoir for toilet flushing (be sure it contains no large solids such as vegetable peelings).
- Collect water from roof gutters for outside use.
- Observe all declared measures from local or state government.



IF YOUR WELL RUNS DRY

The first action to take when a well stops producing water is to determine the reason, because it may not be drought related. The most frequent causes of no water in a private well is the failure of a submersible pump, electrical problem with switches, or the need to replace a pressure tank. It is also

possible that a water line becomes clogged due to iron bacteria or sediment. Contact a licensed water well system provider to determine the cause.



If it is not a mechanical or electrical issue, it is possible that the water level in the well has dropped below the submersible pump intake as a result of persistent dry weather conditions. This may be a temporary effect due to water use (shower, laundry, etc.) and the water level will recover when the water use is stopped. If so, this can be managed by maximizing water conservation measures and limiting water use to only essential purposes. In other cases it may be possible for a water well service provider to relocate the pump to a lower position within the well,

or to increase the system's storage capacity. However, such actions typically represent short term solutions, and do not relieve the well user from responsibility for water conservation actions.

It may become necessary to replace the well with a new, deeper, well. Private well owners should be aware, however, that there is no guarantee that a deeper well will produce greater supply. Deeper wells may also result in differing water quality characteristics, necessitating different water treatment. Consult a water well professional to discuss the options for your situation.